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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,707	09/07/2004	Ecro Suomi	FORSAL-94	3550
36528 7590 02/14/2007 STIENNON & STIENNON 612 W. MAIN ST., SUITE 201 P.O. BOX 1667 MADISON, WI 53701-1667			EXAMINER HUG, ERIC J	
			ART UNIT 1731	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/14/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,707	<b>Applicant(s)</b> SUOMI ET AL.	
	<b>Examiner</b> Eric Hug	<b>Art Unit</b> 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-23 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20 is/are allowed.
- 6) ☒ Claim(s) 9-16 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Abstract*

The disclosure is objected to because of the following informality:

The "thermal shock resistance" (emphasis added) is not described as such in the specification. Instead, it is recited as "thermal shock" or "thermal shock coefficient" on page 9, paragraph [0017] of specification.

### *Specification*

The specification is objected to because of the following informalities:

The equation for thermal shock in paragraph [0025] on page 11, discloses  $\sigma_f$  = the fracture stress of the material, whereas the data of Table 1 on page 12 discloses values for the tensile strength at fracture and the yield stress. It is uncertain which of these values corresponds to  $\sigma_f$ .

The equation also discloses  $\alpha$  = the linear coefficient of thermal expansion. This value is not anywhere in the specification.

Table 1 also discloses "Elongation A5". Does this correspond to the claimed "elongation at fracture"?

*Claim Objections*

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 9, the claimed "thermal shock resistance" (emphasis added), lacks antecedent basis for 'resistance' in the specification. It should read "thermal shock" or "thermal shock coefficient" as described on page 9, paragraph [0017].

Accordingly, the language of claim 21, which now recites "thermal shock", should be consistent with that of claim 9.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-16 and 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 9 and 21 recite a thermal shock of greater than  $6000 \text{ W/m}^2$ . Although this value is disclosed in the specification, there is insufficient data in the specification to make the calculation according to the given equation. Thus, it cannot be determined how the claimed value of  $6000 \text{ W/m}^2$  was obtained. No values for the fracture stress  $\sigma_f$  or the linear coefficient of thermal expansion  $\alpha$  are provided to make even a reasonable estimate of the thermal shock.

***Allowable Subject Matter***

Claims 17-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The claims are allowed, because the prior art does not disclose or suggest a calender comprising at least a backing roll surface formed of quenched and tempered steel having the claimed combination of surface hardness, modulus of elasticity, tensile strength, bending fatigue strength, elongation at fracture, and dynamic ductility all exceeding the claimed levels.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yoshitake et al (US 4,964,924) discloses a martensitic steel paper machine roll.

Miller (US 5,083,374) discloses a thermally prestressed paper drying cylinder to withstand a thermal heat flow of at least 10,000 BTU/hr/ft<sup>2</sup> (over 31,500 W/m<sup>2</sup>).

Ellis et al (US 5,252,185) discloses a calender roll capable of conducting at least 8,500 BTU/hr/ft<sup>2</sup> heat through the roll (over 26,800 W/m<sup>2</sup>).


Vahapesola (US 5,334,125) discloses a calender roll with hardened surface of martensite. The surface hardness, thermal conductivity, thermal expansion coefficient, elastic modulus (coefficient of elasticity), fracture stress (breaking strength), elongation at break, and ductility are disclosed. A maximum thermal shock of is obtained when calculated accordingly.

Art Unit: 1731

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Eric Hug